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## Student-centered interventions the key to student health care worker influenza vaccination

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**Title:** Student-centered interventions the key to student health care worker influenza vaccination

**Abstract:**

*Objectives:* To investigate influenza vaccination uptake rates, attitudes and motivations towards influenza vaccination among student health care workers (HCWs).

*Methods:* Self-reported influenza vaccination uptake among student HCWs at The University of Notre Dame Australia, Fremantle, Western Australia (UNDAF) was surveyed before and after implementation of a peer-led, student-centered campaign to raise awareness of, and improve access to, influenza vaccination. Data were weighted and analysed using logistic regression.

*Results:* Pre-campaign influenza vaccination uptake was 36.3% (95% CI=31.8%-40.8%), with students identifying lack of awareness of both the Australian Government's recommendations and university policy, cost, and inconvenience of vaccine access as key barriers. Post-campaign vaccination coverage increased significantly to 55.9% (95% CI=52.2%-59.6%). Multivariate logistic regression, controlled for statistically insignificant confounders of age and gender, showed that being a student HCW in 2014 (campaign year) was significantly and independently associated with influenza vaccination (OR 2.2, 95% CI=1.7-2.9,  $P<0.001$ ). Other significant factors were eligibility for National Immunisation Programme (NIP) funded vaccine (OR 12.3, 95% CI=6.3 – 24.0,  $P<0.001$ ), employment as HCWs (OR 1.9, 95% CI=1.5-2.6,  $P<0.001$ ), recalled campaign materials (OR 1.8, 95% CI=1.2 – 2.7,  $P=0.002$ ) and enrolled in medicine (OR 1.6, 95% CI=1.1-2.4,  $P=0.016$ ).

*Conclusions:* Student HCWs' influenza vaccination uptake improved significantly following a low-cost, peer-led promotional campaign. This approach can be adapted to other settings.

**Key words:**

Influenza, Vaccination, Peer-led, Promotion, Student Health Care Worker

## Introduction

Influenza places a considerable burden on the Australian healthcare system [1,2]. Vaccination, the most effective preventive strategy, is recommended by the World Health Organization and Australia's Department of Health not only for at risk populations, but also health care workers (HCWs), including student HCWs [3-5]. Despite published literature demonstrating reduced disease burden when HCWs have high vaccination coverage, [6-10] uptake of annual influenza vaccination among HCWs and student HCWs in many parts of Australia and some other countries is poor (16.3% - 58.7%) [6-12].

Mandatory influenza vaccination in health care settings has been successful in increasing uptake to over 90% [13] but this approach is not the norm in Australia. Educational campaigns and provision of free vaccinations via mobile clinics have been effective in improving annual influenza vaccination uptake among Australian HCWs [13-17]. However, there is a need for evidence of their impact on student HCWs [14].

The University of Notre Dame Australia, Fremantle, Western Australia (UNDAF) offers bachelor degrees in medicine, nursing, midwifery and physiotherapy. The respective schools' vaccination policy (2014) recommends annual influenza vaccination for student HCWs [18-20]. In 2013, a baseline study identified the uptake of vaccination among student HCWs at the UNDAF to be 36.3% [12]. Lack of awareness of both the Australian Government and the university recommendations and policy regarding influenza vaccination of HCWs (including students) cost, and inconvenience to access vaccines were identified as key barriers [12]. An on-campus vaccination clinic was explored but not approved by the University's risk manager as there is no medical clinic on campus. However, student HCWs can access influenza vaccination for free from all hospital placement, and some community and GP placement sites during the influenza vaccination season. The current study aimed to assess the impact of a peer-led influenza vaccination campaign on vaccine uptake among student HCWs.

## Materials and Methods

### *Education and promotional campaign March - June 2014:*

The deans, campus and clinical placement staff of UNDAF's medicine, nursing and midwifery, and physiotherapy schools, infection control co-coordinators at clinical placement sites, and student organisations participated in the planning and implementation process of this campaign. These people were noted to be key stakeholders as their approval and/or support was essential to the successful roll-out and implementation of both the awareness campaign and the subsequent evaluation survey.

Key students served as advocates and the 'faces' of the campaign. These peer champions were identified as influential figures by their respective student organisations as either being leaders or role models who commanded respect among their peers and had volunteered their time to advocate for, and serve, their fellow students. The campaign envisioned that students would be more likely to respond positively to the influenza vaccination message if it was being promoted by one of their own. Therefore, peer champions were up-skilled on the evidence base behind the policy, efficacy and risks of influenza vaccination, and provided with information about convenient locations where student HCWs could access free or low cost influenza vaccination. This information was also compiled into a pamphlet (printed and electronic) for peer champions to disseminate. Peer champions participated in both the planning and the implementation stages of the campaign. They also delivered weekly reminders at lectures and through cohort specific social media outlets. University staff, both on campus and at clinical placement sites, also provided information on, and advocated for the annual influenza vaccination to the student HCWs as well as disseminating pamphlets.

School-specific campaign posters (Figure 1) were developed featuring the peer champions and appealing to the student HCWs' duty of care, professional responsibility and accountability. Two hundred, colour, A3 size prints were displayed around the university campus and clinical placements sites along with more specific information about influenza vaccination, its benefits, costs and options for free or low cost access. The campaign's emphasis on duty of care, professional responsibility and accountability was based on both ideology and evidence. One of the key findings from the 2013 semi-structured interviews was the gap in knowledge and

understanding of the role of student HCWs in influenza vaccination program, so the campaign was designed in part to address this key finding. The ideological basis of this intervention is the mission of the University to graduate student HCWs who not only contribute significantly to the health care system but also demonstrate exemplary ethical and professional behavior as prescribed by the core curriculum of the University [21].

Student HCWs were offered free influenza vaccination at all hospital placement sites during vaccination period, while the offer of free vaccination was more variable at community and GP placement sites.

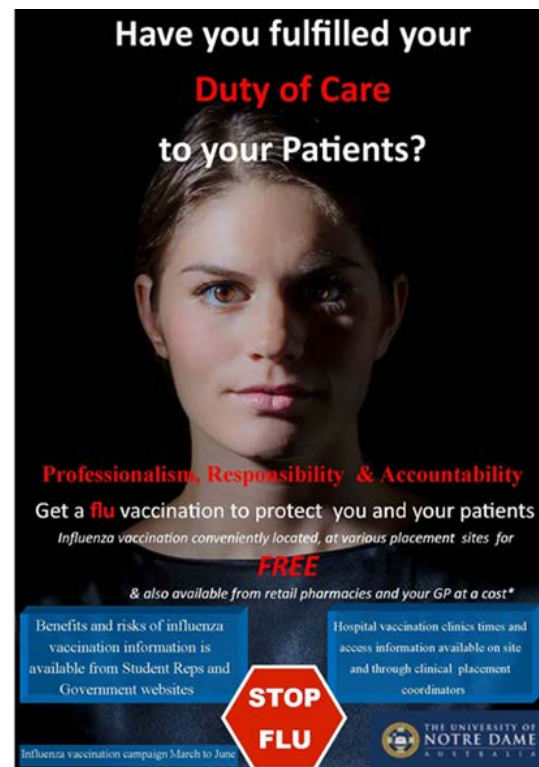
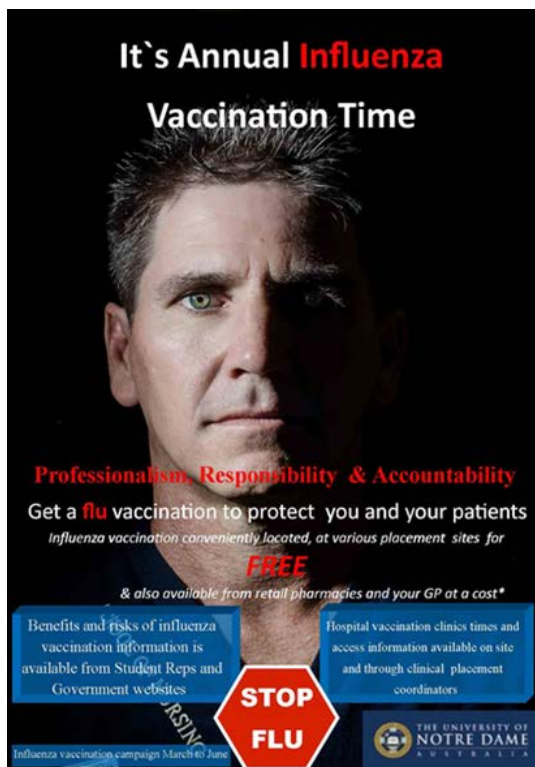


Figure 1, Sample campaign posters

*Impact evaluation phase July - August 2014:*

At the conclusion of the southern hemisphere 2014 influenza vaccination season (July 2014) all 1620 students over the age of 18 years and enrolled in a bachelor degree at UNDAF's schools of medicine (n=414), nursing and midwifery (n=875) and physiotherapy (n=331) were invited, via email, to participate in an on-line, de-identified survey of self-reported influenza vaccination status. The survey included all questions used in the prior 2013 survey [12] together with additional questions about where students were vaccinated, enablers and barriers to vaccination, and recall of UNDAF campaign posters (students were given a variety of influenza vaccination posters from UNDAF, Australian and Western Australian Health Departments and 'decoy' posters which were from non-Australian English-speaking countries). The survey contained a mix of dichotomous (yes/no), multiple response and free text completion items (*online supplementary only* Appendix 1).

Survey data from 2013 and 2014 [12] were combined and analysed using SPSS<sup>TM</sup> Version 22. Vaccination uptake in 2013 and 2014 and corresponding 95% confidence intervals (CIs) were calculated after excluding students who reported a contraindication to influenza vaccination. Proportional weights were applied (medicine 0.65, nursing & midwifery 1.36 and physiotherapy 0.98) to standardise the data to match the University's distribution of student HCWs by school. An alpha level of 0.05 was used for all statistical tests. Multivariate binary logistic regression was used to model the odds of vaccination while adjusting for potential confounders, such as age group, gender, employment as HCWs outside of university studies, eligibility for National Immunisation Program (NIP) funded vaccine, school of enrolment and year of study. Eligibility for NIP funded vaccine defined as persons aged  $\geq 6$  months with conditions predisposing to severe influenza, such as chronic respiratory conditions, chronic neurological conditions and immunocompromising conditions [4]. The independent variables selected to be included in the regression model were consistent with current literature reporting and had been previously used in 2013 [12].

The University of Notre Dame Australia, Fremantle's (UNDAF) Human Research Ethics Committee approved this study (Ref # 014073F).

## Results

A total of 1138 students (37.2%) participated in the online surveys; 438 (30.4%) in 2013 and 700 (43.2%) in 2014. Participation was highest among medical students (n=461, 56.4%), followed by physiotherapy (n=235, 37.7%) and nursing and midwifery (n=442, 27.3%) students. Ten students reported a vaccination contraindication and were excluded from further analysis. Respondent demographics are shown in Table 1. Over one third (36.3%, 413/1138) were employed as HCWs outside of their university studies and 8.3% (94/1138) were eligible for NIP funded influenza vaccine.



**Table 1**

Demographic characteristics of the student HCW population, survey respondents, by year, 2013 and 2014

Variable	2013		2014		Total	
	Population (N=1439) N, (%)	Survey respondent (n=438) n (%)	Population (N=1620) N, (%)	Survey respondent (n=700) n (%)	Population (N=3059) N, (%)	Survey respondent (n=1138) n (%)
<b>AGE (years)</b>						
18 -24	915 (63.6%)	239 (54.6%)	1011 <sup>#</sup> (63.5%)	347 (49.6%)	1926 (63.5%)	586 (51.5%)
25+	524 (36.4%)	199 (45.4%)	581 <sup>#</sup> (36.5%)	353 (50.4%)	1105 (36.5%)	552 (48.5%)
<b>GENDER</b>						
MALE	354 (24.6%)	100 (22.8%)	362 <sup>#</sup> (22.7%)	247 (35.3%)	716 (23.6%)	347 (30.5%)
FEMALE	1085 (75.4%)	338 (77.2%)	1230 <sup>#</sup> (77.3%)	453 (64.7%)	2315 (76.4%)	791 (69.5%)
<b>SCHOOL</b>						
MEDICINE	404 (28.1%)	183 (41.8%)	414 (25.6%)	278 (39.7%)	818 (26.7%)	461 (40.5%)
NURSING	742 (51.6%)	187 (42.7%)	875 (54.0%)	255 (36.4%)	1617 (52.9%)	442 (38.8%)
PHYSIO	293 (20.3%)	68 (15.5%)	331 (20.4%)	167 (23.9%)	624 (20.4%)	235 (20.7%)
<b>YEAR OF STUDY *</b>						
FIRST		95 (21.7%)		183 (26.1%)		278 (24.4%)
SECOND		139 (31.7%)		195 (27.9%)		334 (29.3%)
THIRD		125 (28.5%)		200 (28.6%)		325 (28.6%)
FOURTH		79 (18.1%)		122 (17.4%)		201 (17.7%)
<b>EMPLOYED AS A HCW **</b>						
YES		159 (36.3%)		254 (36.9%)		413 (36.6%)
NO		279 (63.7%)		435 (63.1%)		714 (63.4%)
<b>NIP^ FUNDED VACCINE **</b>						
YES		25 (5.7%)		67 (9.6%)		94 (8.3%)
NO		413 (94.3%)		631 (90.4%)		1044 (91.7%)
<b>TOTAL</b>	1439	438	1620	700	3059	1138

\* Population data by year of study was not available in accordance with the University's privacy policies.

\*\* Population data not available as these data were only available for survey respondents.

# University student records of age and gender were incomplete for 28 of the 1620 students in 2014

^ Eligible for National Immunisation Program funded influenza vaccine

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**Table 2**

Demographic characteristics of vaccinated survey respondents, and weighted univariate chi-square\* results for independent variables, with the likelihood of having undergone influenza vaccination as the dependent variable

		2013			2014			Total		
		Number Vaccinated	Vac coverage, % (95% CI)	P-Value	Number Vaccinated	Vac coverage, % (95% CI)	P-Value	Number Vaccinated	Vac coverage, % (95% CI)	P-Value
AGE (years)										
	18-24	87	32.2% (26.6 – 37.8%)	0.020	197	52.4% (47.4 – 57.5%)	0.041	282	44.3% (40.4 – 48.2%)	0.001
	25+	70	43.2% (35.6 – 50.8%)		186	60.2% (54.7 – 65.6%)		257	54.6% (50.1 – 59.1%)	
GENDER										
	MALE	30	34.9% (24.8 – 44.9%)	0.740	129	58.9% (52.4 – 65.4%)	0.280	161	52.9% (47.3 – 58.5%)	0.092
	FEMALE	127	36.8% (31.7 – 41.9%)		254	54.5% (50.0 – 59.0%)		379	47.1% (43.7 – 50.6%)	
SCHOOL										
	MEDICINE	58	47.5% (38.6 – 56.4%)	0.003	108	61.4% (54.2 – 68.6%)	0.176	166	55.9% (50.3 – 61.6%)	0.013
	NURSING	74	34.7% (28.3 – 41.1%)		195	53.0% (47.9 – 58.1%)		264	55.4% (51.4 – 59.4%)	
	PHYSIO	24	25.3% (16.6 – 34.0%)		81	57.0% (48.9 – 65.1%)		110	47.6% (41.2 – 54.0%)	
YEAR OF STUDY										
	FIRST	36	41.9% (31.9 – 51.9%)	0.356	84	48.0% (40.6 – 55.4%)	<0.001	123	45.9% (39.9 – 51.9%)	0.001
	SECOND	42	30.0% (22.4 – 37.6%)		112	53.3% (46.6 – 60.1%)		155	44.5% (39.3 – 49.7%)	
	THIRD	40	30.3% (22.5 – 38.1%)		126	58.6% (52.0 – 65.2%)		163	47.9% (42.6 – 53.2%)	
	FOURTH	35	53.0% (41.0 – 65.0%)		63	72.4% (63.0 – 81.8%)		98	65.3% (57.7 – 72.9%)	
EMPLOYED AS A HCW										
	YES	61	41.8% (33.8 – 49.8%)	0.094	173	67.3% (61.6 – 73.0%)	<0.001	234	57.9% (53.1 – 62.7%)	<0.001
	NO	95	33.6% (28.1 – 39.1%)		210	49.2% (44.5 – 53.9%)		305	43.5% (39.8 – 47.2%)	
NIP# FUNDED VAC										
	YES	22	78.6% (63.4 – 93.8%)	<0.001	64	92.8% (86.7 – 98.9%)	<0.001	88	89.8% (83.8 – 95.8%)	<0.001
	NO	134	33.4% (28.8 – 38.0%)		319	51.9% (48.0 – 55.6%)		450	44.8% (41.7 – 47.9%)	
YEAR OF SURVEY										
	2013	157	36.3% (31.8 – 40.8%)	<0.001				157	36.3% (31.8 – 40.8%)	<0.001
	2014				384	55.9% (52.2 – 59.6%)	<0.001	384	55.9% (52.2 – 59.6%)	
CAMPAIGN POSTER RECALL										
	YES	-			296	61.3% (57.0 – 65.6%)	<0.001		61.3% (57.0 – 65.6%)	<0.001
	NO	-			75	42.3% (35.0 – 49.6%)			42.3% (35.0 – 49.6%)	
TOTAL		157	36.3% (31.8 – 40.8%)		384	55.9% (52.2 – 59.6%)		540	48.7% (45.8 – 51.6%)	

\* Using Chi-Square, Mantel-Haenszel test for trend, (Linear-by-Linear Association) for year of study and Pearson Chi-Square for all other variables.

# Eligible for National Immunisation Program (NIP) funded influenza vaccine.

Between 2013 (pre-campaign) and 2014 (post-campaign), the vaccination uptake increased significantly ( $p < 0.001$ ), from 36.3% (95% CI= 31.8% - 40.8%) to 55.9% (95% CI= 52.2% - 59.6%) (Table 2). In 2014, 35.7% of vaccinated students reported being vaccinated at a university clinical placement site, 24.8% at their usual general practitioner (GP), 21.9% at their workplace (outside of university studies), 9.1% at another GP and 8.5% at a retail pharmacy.

The three most commonly reported reasons for being vaccinated against influenza were access to free influenza vaccine (37.3%), self-protection (25.6%), access to affordable influenza vaccination (20.1%) whilst the desire to protect patients was reported at 13.2% overall. The top three ranked reasons for not getting vaccinated were lack of access (33.6%), cost of the vaccine (19.9%) and inconvenience to access (15.6%). Other reasons for not seeking vaccination were; concerns about efficacy and side effects (8.4%), perceived lack of need (6.5%), lack of promotion (5.9%) and worry about needles (2.0%).

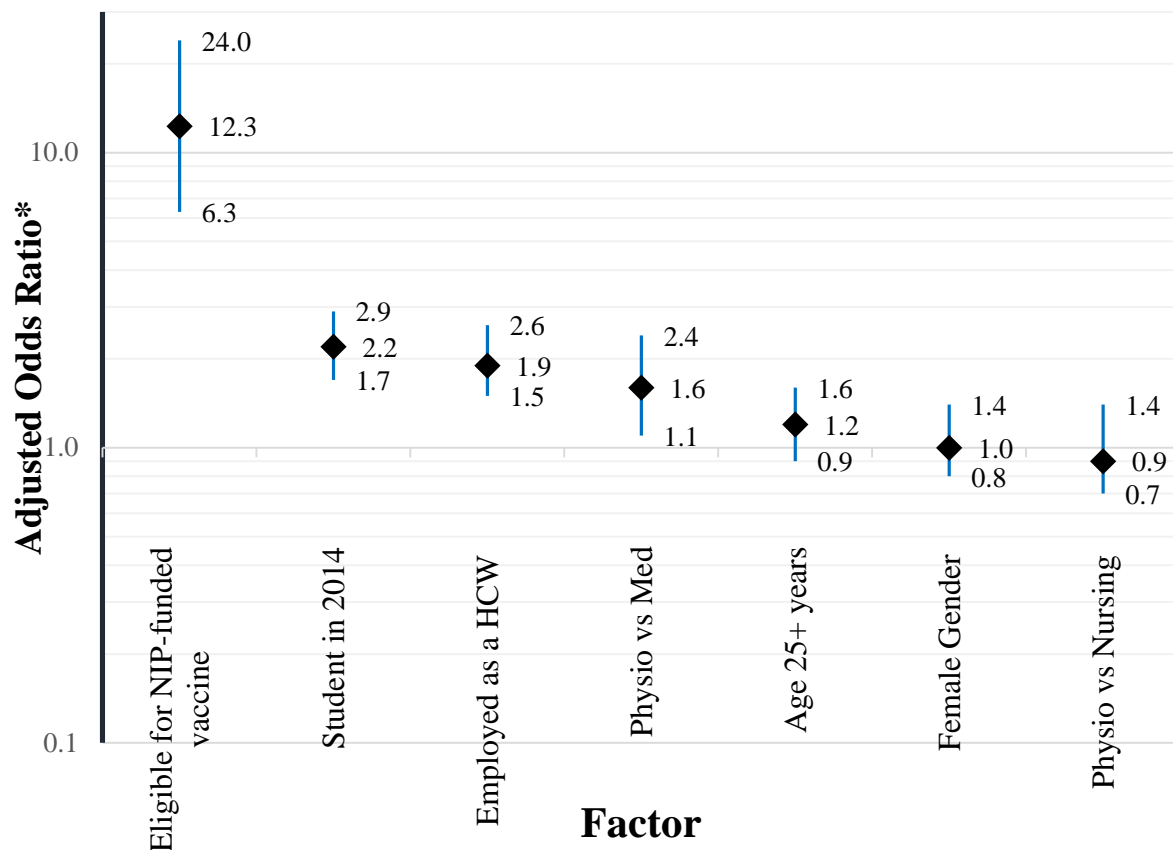
Nearly three-quarters (73.2%, 95% CI=69.8 – 76.6%) of students recalled their school-specific campaign posters accurately, with recall among medical students being higher (82.5%, 95% CI=78 – 87%), than that of physiotherapy (61.7%, 95% CI=54.3 – 69.1%) and nursing/midwifery students (36.5%, 95% CI=31 – 43%). The proportions who reported having seen a decoy poster or could not recall any of the posters were much lower at 7.6%, (95% CI=5.6 – 9.6%) and 19.2% (95% CI=16.2 – 22.2%), respectively.

Univariate analysis showed significant positive associations between influenza vaccination uptake and age, poster recall, year of study, current employment as a HCW outside of university studies, and eligibility for NIP funded vaccine. Multivariate logistic regression of data from 2013 and 2014 combined (Figure 2) showed that, after controlling for age and gender as potential confounders, students were more likely to have been vaccinated if they were eligible for NIP funded vaccine (OR 12.3, 95% CI=6.3 – 24.0,  $P < 0.001$ ), enrolled in 2014 (i.e. post-campaign) (OR 2.2, 95% CI=1.7-2.9,  $P < 0.001$ ), employed as HCWs (OR 1.9, 95% CI=1.5-2.6,  $P < 0.001$ ) or enrolled in medicine (OR 1.6, 95% CI=1.1-2.4,  $P = 0.016$ ).

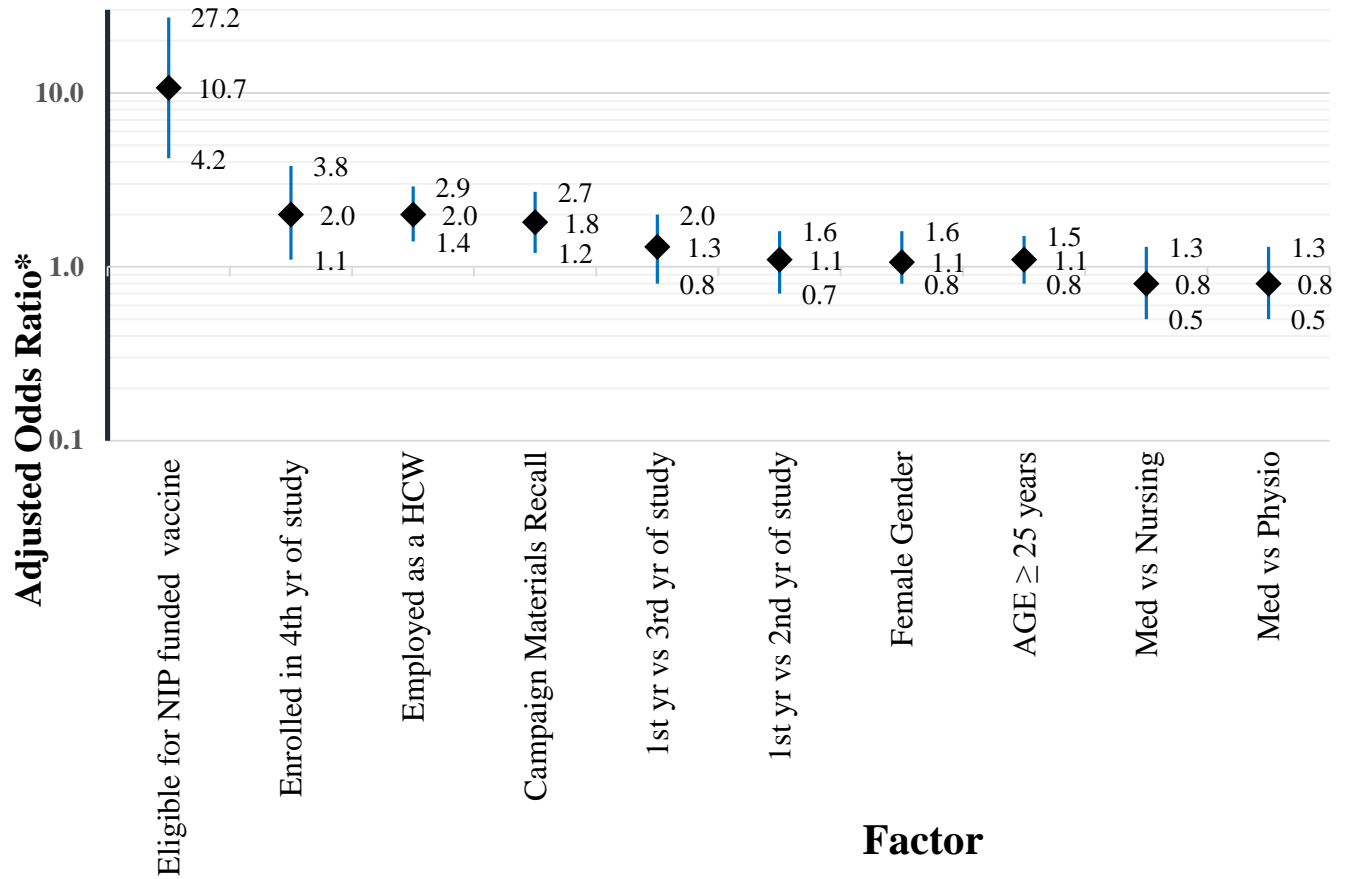
In 2014, i.e. post campaign (Figure 3), students were more likely to be vaccinated if they were eligible for NIP funded influenza vaccine (OR 10.7, 95% CI=4.2 – 27.2,  $P < 0.001$ ), enrolled in fourth year of studies (OR 2.0, 95% CI=1.1-3.7,  $P = 0.029$ ), employed as HCWs (OR 2.0, 95%

CI=1.4 – 2.9,  $P<0.001$ ) or recalled campaign materials (OR 1.8, 95% CI=1.2 – 2.7,  $P=0.002$ ), after controlling for age, gender and school.

**Figure 2.** Weighted multivariate logistic regression analysis for independent variables, with influenza vaccination uptake as the dependent variable, pre- (2013) and post-campaign (2014),  $n = 1115$ .



**Figure 3.** Weighted multivariate logistic regression analysis for independent variables, with influenza vaccination uptake as the dependent variable, post campaign 2014, n = 655.



## Discussion

Influenza vaccination uptake among UNDAF student HCWs increased from 36% in 2013 to 56% in 2014 following a low cost, peer-led and student-centered vaccination campaign. The positive association between influenza vaccination uptake and campaign poster recall in 2014 (61.3% vs 42.3%, Table 2) coupled with stable influenza vaccination uptake among Western Australian Department of Health HCWs during the same time period (44% in 2013 and 43% in 2014) [22] indicates that the increase in vaccination uptake was at least partly due to the campaign.

To date there is no published research on peer-led student vaccination campaigns during a non-pandemic period. Our findings indicate that free, affordable and convenient access to vaccines are effective enablers of vaccination not just in HCWs, as shown in the current literature [3, 8, 13 17], but also among student HCWs.

The post-campaign influenza vaccination uptake of 56% is also consistent with current literature that suggests the maximum uptake achievable with education and improving access is around 60% and the only proven method to improve uptake to the 80% required for herd immunity [9] is a mandatory influenza vaccination program. Such a program delivered in conjunction with declination forms also calls for all staff with close patient contact who are not vaccinated to wear a face mask for the whole flu season [13, 23]. This method has been successful at not only boosting, but sustaining high influenza vaccination coverage [13, 23]. The ethics of mandatory vaccination is a classic example of the end justifying the means as Poland [24] argued that mandated HCWs influenza vaccination is well founded on the principles of moral and ethical obligations and duty of care owed to patients. It was not feasible to include either declination forms or mandatory vaccination in our campaign because neither has been adopted as policy or implemented as practice in any health service where UNDAF student HCWs undertake clinical placements. Therefore, even if the University had the resources to implement and monitor declination forms and/or mandatory vaccination as part of University policy, enforcement would be impossible.

A concerning finding from this study, and supported by the literature as applying to qualified HCWs, is that student HCWs cite self-protection as more important motivator for vaccination than their duty to protect their patients [16-17]. Suboptimal vaccination uptake coupled with this sentiment of self-preservation raises questions about the professionalism of student HCWs and whether more needs to be done to reorient their behaviors towards the public good. We could not find any evidence in current literature about interventions addressing professionalism as strategy to improve influenza vaccination uptake in HCWs.

There is a well-recognized phenomenon of a decline in moral reasoning of medical students, with one study [25] highlighting the need to implement strategies that stimulate positive changes in developing moral judgment during tertiary education. Therefore, we postulate that targeting student HCWs for annual influenza vaccination with a campaign that emphasizes duty of care to their patients might guide them towards a more robust ethical reasoning framework at a formative stage of their professional career and will lead to continued acceptance of annual influenza vaccination after graduation. Thus, it seems reasonable to expect universities to include influenza vaccination as an important part of educating student HCWs about professionalism.

Limitations of this study include the use of self-reported vaccination status. It was not feasible to examine medical records to verify vaccination status due to resource constraints, as well as the ethical implications of researchers contacting individual student's health care practitioners. Measuring vaccination uptake using self-reported information alone is less ideal than in combination with medical record verification [17, 26-27]. However, recent literature has defended its continued use because of its high sensitivity and moderate specificity, especially in studies involving healthy adults [17, 26-27].



## Conclusions

In conclusion, influenza vaccination uptake increased among student HCWs following implementation of an influenza vaccination campaign designed to address barriers and enablers to influenza vaccination identified by the target group. Active engagement and support of student associations were key features of the campaign, as was promotion of the benefits of annual influenza vaccination for both student HCWs and their patients. It is equally important to appeal to the student HCWs sense of professional accountability and responsibility when delivering public health awareness campaigns to encourage the development of sound moral and ethical decision making frameworks which will then inform their future practice.

**Conflict of interest:**

None to declare

**Funding:**

No external funding was received for this project. This project was completed by a final year medical student as part of the honours degree. The funds to print the posters were sourced from the University's honours project funding budget. The incentive prize for survey respondents of a \$50 gift voucher for each school with a total prize pool of \$150 was self-funded by the student researcher (MN).

**Highlights: (Birds eye View)**

Peer-led, student-centred campaign led to significant increase in vaccination uptake among student HCWs.

Active engagement of the target audience and local stakeholders in vaccination promotion and delivery is key to facilitating improved uptake.

There is a need to emphasize the tenets of professional accountability and responsibility among student HCWs, on which to build their future practice.

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## Appendix 1: Survey Monkey™ Online Survey Outline

### PAGE ONE

**PROJECT TITLE:** The impact of university promotion of annual influenza vaccination on uptake among student health care workers at Notre Dame, Fremantle.

<b>CHIEF INVESTIGATOR:</b>	Professor David J Macey
<b>CHIEF INVESTIGATOR:</b>	Professor Donna B Mak
<b>STUDENT RESEARCHER:</b>	Munyaradzi G Nyandoro
<b>STUDENT'S DEGREE:</b>	Bachelor of Medicine Bachelor of Surgery (Hons)

You have received a Participant Information Sheet along with the email invitation, this document explains the purpose and process of this research project and has specific information contact details should you want further clarification. Please take the time to read it.

### **QUESTION ONE: CONSENT:** (COMPULSORY ANSWER)

I have read and understood the Information Sheet about this project and any questions have been answered to my satisfaction.

I understand that I may withdraw from participating in the project at any time without prejudice.

I understand that all information gathered by the researcher will be treated as strictly confidential, except in instances of legal requirements such as court subpoenas, freedom of information requests, or mandated reporting by some professionals.

I understand that the protocol adopted by the University Of Notre Dame Australia Human Research Ethics Committee for the protection of privacy will be adhered to and relevant sections of the *Privacy Act* are available at <http://www.nhmrc.gov.au/>

I agree that any research data gathered for the study may be published provided my name or other identifying information is not disclosed.

**I hereby agree to be a participant in the above named research.**

**YES or NO**

**APPENDIX 1: Survey Monkey™ Online Survey Outline, Continued**

**PAGE TWO**

**QUESTION TWO:** (COMPULSORY ANSWER)

**Have you received the influenza vaccination THIS year (2014)?**

**YES or NO**

**QUESTION THREE:** (COMPULSORY ANSWER)

**If no, was this because of a medical contraindication to influenza vaccination?**

**YES or NO or DON'T KNOW or NOT APPLICABLE**

**QUESTION FOUR:** (COMPULSORY ANSWER)

**If you were studying in the School of Medicine, Nursing and Midwifery or Physiotherapy LAST year, did you receive the influenza vaccination LAST year (2013)?**

**YES or NO or DON'T KNOW or NOT APPLICABLE (not enrolled)**

**QUESTION FIVE:** (COMPULSORY ANSWER)

**If NO, was this because of a medical contraindication to influenza vaccination?**

**YES or NO or DON'T KNOW or NOT APPLICABLE**

The Australian Immunisation Handbook 10<sup>th</sup> edition is available online for clarity on medical contraindications to influenza vaccination. <http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook10-home~handbook10part4~handbook10-4-7>

Contraindication: is a specific situation or condition which makes receiving a vaccination potentially inadvisable because it may be harmful to the patient. A contraindication may be absolute or relative

The only absolute contraindications to influenza vaccines are:

- anaphylaxis following a previous dose of any influenza vaccine
- anaphylaxis following any vaccine component.

Precautions are recommended for persons with a known egg allergy, persons with a history of Guillain-Barré syndrome or Children requiring both influenza and 13-valent pneumococcal conjugate vaccine.



**APPENDIX 1: Survey Monkey™ Online Survey Outline, Continued****PAGE THREE****QUESTION SIX:** (COMPULSORY ANSWER)**How old are you?****18-24 years****25-34 years****35 years or older****QUESTION SEVEN:**(COMPULSORY ANSWER)**Are you Male or Female?****Male****Female****QUESTION EIGHT:**(COMPULSORY ANSWER)**What school are you currently enrolled in?****Medicine****Nursing and Midwifery****Physiotherapy****QUESTION NINE:** (COMPULSORY ANSWER)**What year of the course are you currently enrolled in?****First****Second****Third****Fourth**

## APPENDIX 1: Survey Monkey™ Online Survey Outline, Continued

## PAGE FOUR

**QUESTION TEN:** (COMPULSORY ANSWER)

Are you currently employed as a health care worker outside of your university study?

YES or NO

**QUESTION ELEVEN:** (COMPULSORY ANSWER)

Were you employed as a health care worker at the same time last year?

YES or NO or DON'T KNOW

**QUESTION TWELVE:** (COMPULSORY ANSWER)

Do you currently have a medical condition which makes you eligible for government-funded influenza vaccine?

YES or NO or DON'T KNOW

**QUESTION THIRTEEN:** (COMPULSORY ANSWER)

At the same time last year did you have a medical condition which made you eligible for government-funded influenza vaccine?

YES or NO or DON'T KNOW

The following site has a list of those people who are eligible to attend their general practitioner and receive the annual influenza vaccination at no out of pocket cost under the National Immunisation Program

<http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook10-home~handbook10part4~handbook10-4-7#4-7-9>

Free Flu Vaccine is available to the following people:

*All adults aged  $\geq 65$  years, Persons at increased risk of complications from influenza infection for example - Pregnant women, Persons with Cardiac disease, Down syndrome, Chronic respiratory conditions, Chronic neurological conditions, Immunocompromising conditions, Chronic liver disease, Other chronic illnesses requiring regular medical follow-up or hospitalisation in the preceding year, Aboriginal and Torres Strait Islander people, Children aged  $< 5$  years, Residents of residential aged care facilities and long-term residential facilities, Homeless people, Persons who may transmit influenza to persons at increased risk of complications from influenza infection (all healthcare providers staff (or volunteers). Persons providing essential services.*

**APPENDIX 1: Survey Monkey™ Online Survey Outline, Continued****PAGE FIVE****QUESTION FOURTEEN:** (COMPULSORY ANSWER)**Where did you get vaccinated THIS year?**

My usual GP

Another GP

Retail Pharmacy

My workplace

My clinical placement

Did not get vaccinated

**QUESTION FIFTEEN:** (COMPULSORY ANSWER) (Order randomised for each student)**What factors influenced your decision THIS year to GET influenza vaccination?(Select all that apply)**

Not applicable (I did NOT get influenza vaccine THIS year)

Access to free influenza vaccine

Access to affordable influenza vaccine

Access without having to see a doctor

Protect myself against influenza

Protect my patients against influenza

Promotion of vaccination on Notre Dame Blackboard or by Notre Dame staff

Promotion of vaccination at clinical placement site

Promotion of vaccination by my student association, i.e. MSAND, NDNS or PSS

Promotion of vaccination at my GP clinic

Effectiveness of influenza vaccine

Other students getting influenza vaccination

Other, please specify [Free Text]

**QUESTION SIXTEEN:**(COMPULSORY ANSWER) (Order randomised for each student)**From the factors mentioned above which where the three most influential to your decision?  
Please number them 1 - 3 in order of importance.**

Not applicable (I did NOT get influenza vaccine THIS year)

Access to free influenza vaccine

Access to affordable influenza vaccine

Access without having to see a doctor

Protect myself against influenza

Protect my patients against influenza

Promotion of vaccination on Notre Dame Blackboard or by Notre Dame staff

Promotion of vaccination at clinical placement site

Promotion of vaccination by my student association, i.e. MSAND, NDNS or PSS

Promotion of vaccination at my GP clinic

707 Effectiveness of influenza vaccine  
 708 Other students getting influenza vaccination  
 709 Other, as specified ABOVE

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713 Page SIX

714 **QUESTION SEVENTEEN:** (COMPULSORY ANSWER) (Order randomised for each student)

715 What factors influenced your decision NOT to get an influenza vaccination THIS year? (Select all  
 716 that apply)

717 Not applicable (I GOT my influenza vaccine this year)  
 718 I had no access to free influenza vaccination  
 719 The cost of influenza vaccination  
 720 I had to see a doctor first  
 721 Lack of promotion of influenza vaccination on Notre Dame Blackboard or by Notre  
 722 Dame staff  
 723 Lack of promotion of influenza vaccination at clinical placement site  
 724 Lack of promotion by my student association, i.e. MSAND, NDNS or PSS  
 725 Lack of promotion of influenza vaccination at my GP clinic  
 726 Concern about side effects  
 727 Don't believe in vaccination  
 728 Dislike of needles  
 729 Effectiveness of the vaccine  
 730 I am not likely to get influenza  
 731 Other students in my course were NOT getting influenza vaccination  
 732 Other, please specify [Free Text]

733

734 **QUESTION EIGHTEEN:**(COMPULSORY ANSWER) (Order randomised for each student)

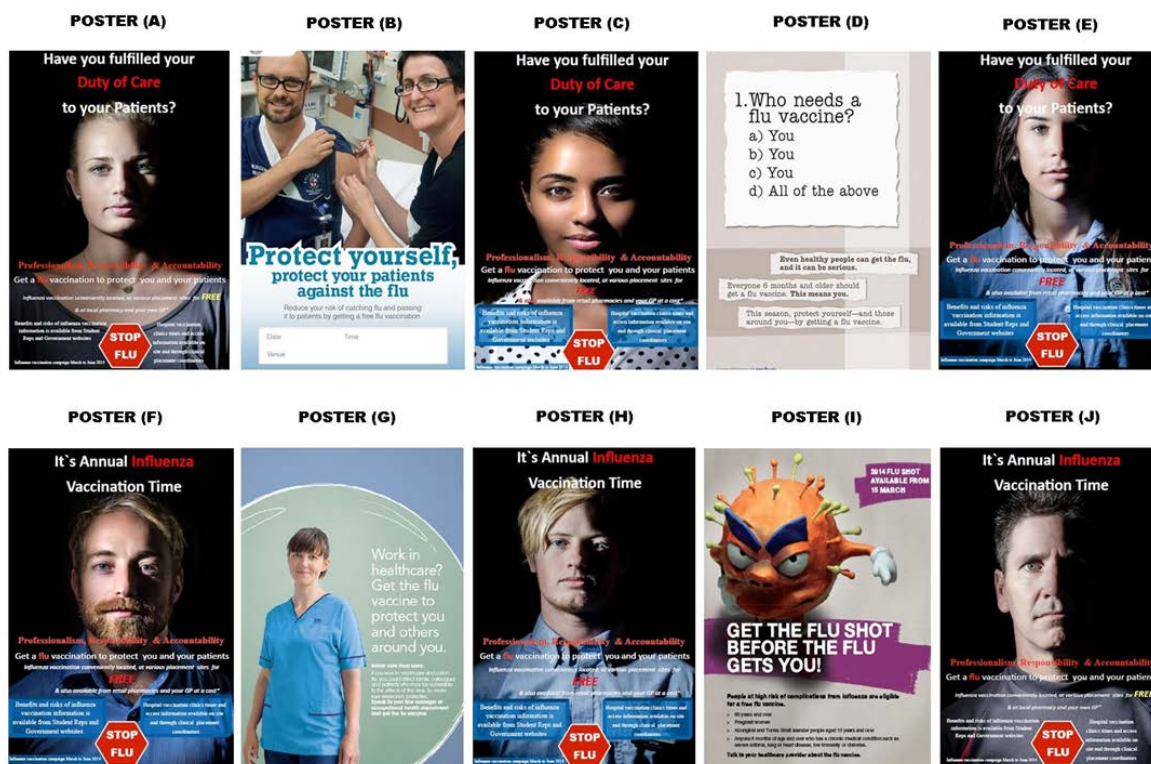
735 From the factors mentioned above which where the three most influential to your decision?  
 736 Please number them 1 - 3 in order of importance.

737 Not applicable (I GOT my influenza vaccine this year)  
 738 I had no access to free influenza vaccination  
 739 The cost of influenza vaccination  
 740 I had to see a doctor first  
 741 Lack of promotion of influenza vaccination on Notre Dame Blackboard or by Notre  
 742 Dame staff  
 743 Lack of promotion of influenza vaccination at clinical placement site  
 744 Lack of promotion by my student association, i.e. MSAND, NDNS or PSS  
 745 Lack of promotion of influenza vaccination at my GP clinic  
 746 Concern about side effects

747                    **Don't believe in vaccination**  
748                    **Dislike of needles**  
749                    **Effectiveness of the vaccine**  
750                    **I am not likely to get influenza**  
751                    **Other students in my course were NOT getting influenza vaccination**  
752                    **Other, please specify [Free Text]**  
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## APPENDIX 1: Survey Monkey™ Online Survey Outline, Continued

## PAGE SEVEN

**QUESTION NINETEEN:** (POSTER IMAGES)**QUESTION NINETEEN:** (COMPULSORY ANSWER)

Which of the posters listed above have you seen THIS year? (Select all that apply)

- A) Poster
- B) Poster
- C) Poster
- D) Poster
- E) Poster
- F) Poster
- G) Poster
- H) Poster
- I) Poster
- J) Poster
- K) None of the above

**APPENDIX 1: Survey Monkey™ Online Survey Outline, Continued****PAGE EIGHT**

**Thank you for participating in this research, it is greatly appreciated. As a token of our thanks, there is a chance to win a Coles/Myer voucher.**

**QUESTION TWENTY:** (COMPULSORY ANSWER)

**I would like to go in the running for a \$50 Coles/Myer voucher**

**YES or NO**

**QUESTION TWENTY-ONE:** (COMPULSORY ANSWER)

**I would like to receive an executive summary of the research findings**

**YES or NO**

**PERSONAL CONTACT DETAILS:**(NOT COMPULSORY)

**If you answered yes to any of the above two questions (20-21), please provide your**

**Notre Dame email address: [Free text box]**

**Thank you for participating in this research, it is greatly appreciated!**

Please note that this research group takes your confidentiality very seriously.

If you provide us with your email address, it will in no way be linked to the rest of your survey responses.

This data will be extracted separately so that no association can be made.

At no time will the raw data collected in this survey be released to any third party.

**End of the survey.**